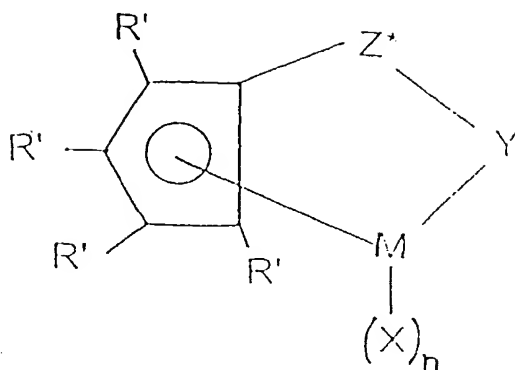


Claims

1. A process for the polymerisation of olefin monomers selected from (a) ethylene, (b) propylene (c) mixtures of ethylene and propylene and (d) mixtures of (a), (b) or (c) with one or more other alpha-olefins, said process performed in a polymerisation reactor in the presence of a supported polymerisation catalyst *characterised* in that prior
5 to injection into the reactor said supported polymerisation catalyst in the form of a powder is contacted with an inert hydrocarbon liquid in a quantity sufficient to maintain said catalyst in powder form.
2. A process according to either of the preceding claims wherein the inert hydrocarbon liquid is a lower alkane or an aromatic hydrocarbon.
- 10 3. A process according to claim 2 wherein the inert hydrocarbon liquid is hexane.
4. A process according to any of the preceding claims wherein the supported polymerisation catalyst comprises
 - (a) a support.
 - (b) a transition metal compound, and
 - 15 (c) an activator.
5. A process according to claim 4 wherein the inert hydrocarbon liquid is present in amount up to about 10% of the pore volume of the support.
6. A process according to claim 4 wherein the support is an inorganic metal oxide
7. A process according to claim 6 wherein the support is silica.
- 20 8. A process according to claim 4 wherein the transition metal compound is a metallocene.
9. A process according to claim 8 wherein the metallocene has the formula:



wherein:-

R' each occurrence is independently selected from hydrogen,

- 5 hydrocarbyl, silyl, germyl, halo, cyano, and combinations thereof, said R' having up to 20 nonhydrogen atoms, and optionally, two R' groups (where R' is not hydrogen, halo or cyano) together form a divalent derivative thereof connected to adjacent positions of the cyclopentadienyl ring to form a fused ring structure;

X is hydride or a moiety selected from the group consisting of halo,

- 10 alkyl, aryl, aryloxy, alkoxy, alkoxyalkyl, amidoalkyl, siloxyalkyl etc. having up to 20 non-hydrogen atoms and neutral Lewis base ligands having up to 20 non-hydrogen atoms,

Y is -O-, -S-, -NR*-, -PR*-,

M is hafnium, titanium or zirconium,

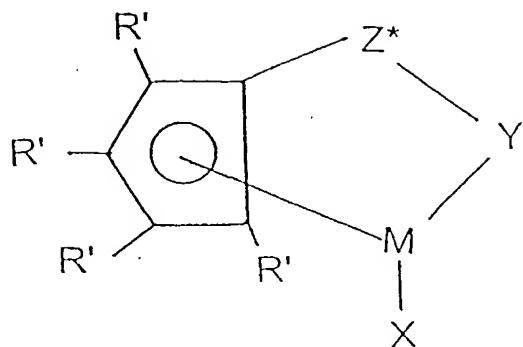
- 15 Z* is SiR*₂, CR*₂, SiR*₂SIR*₂, CR*₂CR*₂, CR*=CR*, CR*₂SIR*₂, or GeR*₂, wherein:

R* each occurrence is independently hydrogen, or a member selected from hydrocarbyl, silyl, halogenated alkyl, halogenated aryl, and combinations thereof, said

- 20 R* having up to 10 non-hydrogen atoms, and optionally, two R* groups from Z* (when R* is not hydrogen), or an R* group from Z* and an R* group from Y form a ring system.,

and n is 1 or 2 depending on the valence of M.

10. A process according to claim 8 wherein the metallocene has the formula



wherein:-

R' each occurrence is independently selected from hydrogen, hydrocarbyl, silyl, germyl, halo, cyano, and combinations thereof, said R' having up to 20 nonhydrogen atoms, and optionally, two R' groups (where R' is not hydrogen, halo or cyano) together form a divalent derivative thereof connected to adjacent positions of the cyclopentadienyl ring to form a fused ring structure;

X is a neutral η^4 bonded diene group having up to 30 non-hydrogen atoms, which forms a π -complex with M;

Y is -O-, -S-, -NR^{*}-, -PR^{*}-,

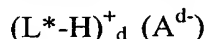
M is titanium or zirconium in the + 2 formal oxidation state;

Z^{*} is SiR^{*}₂, CR^{*}₂, SiR^{*}₂SIR^{*}₂, CR^{*}₂CR^{*}₂, CR^{*}=CR^{*}, CR^{*}₂SIR^{*}₂, or GeR^{*}₂, wherein:

R^{*} each occurrence is independently hydrogen, or a member selected from hydrocarbyl, silyl, halogenated alkyl, halogenated aryl, and combinations thereof, said

R^{*} having up to 10 non-hydrogen atoms, and optionally, two R^{*} groups from Z^{*} (when R^{*} is not hydrogen), or an R^{*} group from Z^{*} and an R^{*} group from Y form a ring system.

11. A process according to claim 4 wherein the activator has the formula



wherein

L^{*} is a neutral Lewis base

(L^{*}-H)⁺_d is a Bronsted acid

A^{d-} is a non-coordinating compatible anion of a Group IIIA metal or metalloid having a charge of d⁻, and

d is an integer from 1 to 3.

12. A process according to claim 11 wherein the activator comprises a cation and an anion wherein the anion has at least one substituent comprising a moiety having an active hydrogen,

13. A process according to any of the preceding claims carried out in the gas phase.

14. A process according to claim 13 operating in a fluidised bed reactor.

15. A method for the reduction of fines associated with a polymer product obtained by the polymerisation of olefin monomers selected from (a) ethylene, (b) propylene (c) mixtures of ethylene and propylene and (d) mixtures of (a), (b) or (c) with one or more other alpha-olefins performed in a polymerisation reactor in the presence of a supported polymerisation catalyst, said method comprising contacting said supported polymerisation catalyst in powder form prior to injection into the reactor with an inert hydrocarbon liquid in a quantity sufficient to maintain said catalyst in powder form.

16. A method according to claim 15 wherein the level of fines comprising particles of diameter < 125 µm and microfines of diameter < 50 µm is reduced.

20

25

30